

CLAIMS

I claim:

1. An apparatus for cleaning animal cage components comprising:
 - 5 a soil side robot for removing soiled bedding from at least one of said cage components, and placing said at least one of said cage components upon a tunnel conveyer for advancing said at least one of said cage components through a tunnel washing system;
 - an optical arranger robot system for detecting said at least one of said cage
 - 10 components exiting said tunnel washing system, and placing said at least one of said cage components upon a re-grip station;
 - a clean side robot for removing said at least one of said cage components from said re-grip station, and placing said at least one of said cage components on a rack, pallet, or fixture; and
 - 15 at least one of said soil side robot and said clean side robot is movably mounted on a horizontal track.
2. The apparatus for cleaning animal cage components of claim 1, wherein said tunnel washing system is a continuous driven conveying belt tunnel wash system.
- 20 3. The apparatus for cleaning animal cage components of claim 1, further comprising a clean bedding dispenser for adding bedding material to said at least one of said cage components that have passed through said tunnel washing system.

4. The apparatus for cleaning animal cage components of claim 1, further comprising an inline bedding conveyer wherein said inline bedding conveyer is located adjacent to said tunnel conveyer and said optical arranger robot system.

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5. The apparatus for cleaning animal cage components of claim 4, wherein said inline bedding conveyer further comprises an inline tunnel type conveyorized bedding dispenser.

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6. The apparatus for cleaning animal cage components of claim 4, wherein said inline bedding conveyer further comprises a receiving end and a dispatch end, wherein said receiving end of said inline bedding conveyer is positioned a distance below said tunnel conveyer.

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7. The apparatus for cleaning animal cage components of claim 6, wherein the distance between said tunnel conveyer and said receiving end of said inline bedding conveyer is a sufficient distance to cause said at least one of said cage components progressing from said tunnel conveyer to said inline bedding conveyer to become inverted.

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8. The apparatus for cleaning animal cage components of claim 1, wherein said optical arranger robot system further comprises an optical eye, an encoding device, and an optical arranger robot.

9. The apparatus for cleaning animal cage components of claim 8, wherein said optical eye transmits a video signal presenting the position of said at least one of said cage components in a predetermined area to an encoding device, and said encoding
5 device converts said video signals into a command signal suitable for directing said optical arranger robot to grasp said at least one of said cage components and place said at least one of said cage components on said re-grip station.

10. The apparatus for cleaning animal cage components of claim 1, wherein said
10 soil side robot further comprises a stationary mounting section having a track, and a robotic arm assembly having a base.

11. The apparatus for cleaning animal cage components of claim 10, wherein said base of said robotic arm assembly is slidably attached to said track of said stationary
15 mounting section.

12. The apparatus for cleaning animal cage components of claim 11, wherein said base of said robotic arm assembly is propelled along said track of said stationary mounting section via a rack and pinion system.

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13. The apparatus for cleaning animal cage components of claim 1, wherein said clean side robot further comprises a stationary mounting section having a track, and a robotic arm assembly having a base.

14. The apparatus for cleaning animal cage components of claim 13, wherein said base of said robotic arm assembly is slidably attached to said track of said stationary mounting section.

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15. The apparatus for cleaning animal cage components of claim 14, wherein said base of said robotic arm assembly is propelled along said track of said stationary mounting section via a rack and pinion system.

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16. A method for cleaning animal cage components via an automated cage cleaning system, said method comprising the steps of:

lifting at least one of said cage components from a first rack, pallet, or fixture and removing soiled bedding from said at least one of said cage components;

placing said at least one of said cage components on a conveyer;

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advancing said at least one of said cage components on said conveyer through a tunnel wash system;

adding clean bedding to said at least one of said cage components exiting the tunnel wash system;

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detecting the position of said at least one of said cage components exiting the tunnel wash system;

lifting said at least one of said cage components and placing said at least one of said cage components on a re-grip station; and

lifting said at least one of said cage components from said re-grip station and placing said at least one of said cage components on a second rack, pallet, or fixture.

17. The method for cleaning animal cage components via the automated system of
5 claim 16, further comprising the steps of:

inverting said at least one of said soiled cage components to be face side down on the conveyer prior to advancing said conveyer through said tunnel wash system; and

inverting said at least one of said cage components to be face side up prior to adding the clean bedding.

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18. The method for cleaning animal cage components via the automated system of claim 16, wherein said tunnel washing system is a continuous driven conveying belt tunnel wash system.

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